

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented) A method of etching an uniform silicon layer, comprising:

providing a patterned silicon layer with etching residues on sidewalls thereof;

treating said patterned silicon layer with etching residues on sidewalls thereof using a gas comprising oxygen and a silicon etching agent to thereby form an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer; and

etching the etching buffer layer, the etching residues, and the patterned silicon layer until the thickness of the patterned silicon layer is reduced.

2. (Currently amended) The method ~~as claimed in~~of claim 1, wherein the etching buffer layer comprises silicon oxide (SiO₂).

3. (Currently amended) The method ~~as claimed in~~of claim 2, wherein the etching buffer layer is formed by oxidation.

4. (Currently amended) The method ~~as claimed in~~of claim 1, further comprising Cl₂, SF₆, or HBr used during etching.

5. (Currently amended) The method ~~as claimed in~~of claim 1, wherein the thickness of the etching buffer layer is about 5~20nm.

6. (Currently amended) The method ~~as claimed in~~of claim 1, wherein the thickness of the patterned silicon layer is about 120~250nm.

7. (Previously presented) A method of etching an uniform silicon layer, comprising:

providing a silicon layer;

forming a mask with patterns on the silicon layer;

performing a first etching to pattern the silicon layer using the mask as a shield, to form a patterned silicon layer with patterns and etching residues on sidewalls thereof;

removing the mask;

treating said patterned silicon layer with patterns and etching residues on sidewalls thereof using a gas comprising oxygen and a silicon etching agent to thereby form an etching buffer layer conformally on the etching residues and the top surface of the patterned silicon layer; and

performing a second etching to remove the etching buffer layer and the etching residues, to reduce the thickness of the patterned silicon layer.

8. (Currently amended) The method ~~as claimed in~~of claim 7, wherein the mask is a photoresist layer.

9. (Currently amended) The method ~~as claimed in~~of claim 7, wherein the etching buffer layer comprises silicon oxide (SiO₂).

10. (Currently amended) The method ~~as claimed in~~of claim 9, wherein the etching buffer layer is formed by oxidation.

11. (Currently amended) The method ~~as claimed in~~of claim 7, further comprising Cl_2 , SF_6 , or HBr used during the second etching.

12. (Currently amended) The method ~~as claimed in~~of claim 7, wherein the thickness of the etching buffer layer is about 5~20nm.

13. (Currently amended) The method ~~as claimed in~~of claim 7, wherein the thickness of the patterned silicon layer is about 120~250nm.

14. (Previously presented) A method of etching a silicon layer to avoid non-uniformity, comprising:

providing a silicon layer;

forming a mask with patterns on the silicon layer;

performing a first etching to pattern the silicon layer using the mask as a shield, to form a patterned silicon layer with patterns and etching residues on sidewalls thereof;

removing the mask;

introducing a gas containing oxygen treatment, using a gas comprising oxygen and a silicon etching agent, to conformally form an etching buffer layer on the etching residues and the top surface of the patterned silicon layer; and

performing a second etching to remove the etching buffer layer and the etching residues formed on sidewalls thereof, to reduce the thickness of the patterned silicon layer.

15. (Currently amended) The method ~~as claimed in~~of claim 14, wherein the mask is a photoresist layer.

16. (Currently amended) The method ~~as claimed in~~of claim 14, further comprising Cl_2 , SF_6 , or HBr used during the second etching.

17. (Currently amended) The method ~~as claimed in~~of claim 14, wherein the thickness of the etching buffer layer is about 5~20nm.

18. (Currently amended) The method ~~as claimed in~~of claim 14, wherein the thickness of the patterned silicon layer is about 120~250nm.

19. (Currently amended) The method ~~as claimed in~~of claim 14, wherein the gas comprises 90%~100% oxygen and not more than 10% etching agent used in second etching.

20. (Currently amended) The method ~~as claimed in~~of claim 14, wherein the gas containing oxygen treatment is performed at about 10~90°C.

21. (Canceled).

22. (Previously presented) The method of claim 1, wherein said silicon etching agent comprises Cl_2 , SF_6 , or HBr .

23. (Currently amended) The method of claim 7, wherein said silicon etching agent comprises ~~no water~~ Cl_2 , SF_6 , or HBr .

24. (Currently amended) The method of claim 14, wherein said silicon etching agent comprises ~~no water~~ Cl_2 , SF_6 , or HBr .